

(especially real estate), and real estate prices themselves. As a result, asset prices affect consumption through the wealth effect and liquidity of households [39].

However, the asset price channel works best in countries with developed stock and commodity markets, like the US, and has limited capacity in Ukraine. The main reason for it is that the stock market in Ukraine is still in an early stage, with stocks playing no significant role in household financial assets. Similarly, government securities account for only UAH 36,1 billion in the circulation of individuals and UAH 115,7 billion – legal entities as of May 1, 2023 [40].

The asset price channel's effect may be noticeable to some extent via substantial amounts of foreign currency held by households as savings. A tighter monetary policy that strengthens the hryvnia exchange rate reduces the real value of household savings in foreign currency. This may affect households' long-term consumer and investment decisions.

In summary, the NBU has been successful in implementing the inflation-targeting regime and resolving the banking system crisis since 2016. Research conducted by Ukrainian scholars has shown that the interest rate, exchange rate, and expectations channels have been effective. However, the credit channel remains ineffective, and the asset price channel is underdeveloped. The reasons for this include an underdeveloped financial system, low stock market development, and the limited role played by long-term investment institutions such as pension funds, as well as historical factors such as high and volatile inflation, low trust in the central bank, and structural changes.

2.2. The monetary policy experience during the war and post-war periods

During a crisis, the objectives of a monetary policy shift to address the unique challenges presented by a military economy. In such an economy, government expenditure rises, and the state's role in the economy becomes more prominent. Furthermore, economic decisions are dominated by security concerns, and the economic multiplier effect is limited due to the destruction caused by war [41].

If we look at the Federal Reserve System of the U.S. when World War II outbroke, the challenges for dealing with a considerable surge in the federal deficit due to increased war expenditures occurred even though the Treasury was depended more on taxes than it was during World War I and even with the rise in tax revenue due to the significant growth in industrial production [42].

To promote stable financial markets and reduce interest rates on financing large deficits, the FRS controlled government bond prices and established a maximum yield. The FRS's commitment to maintaining low yields resulted in the purchase of a significant volume of government securities, producing a substantial expansion of the Federal Reserve System's balance sheet and the monetary base (by 149% from August 1939 to August 1948). Moreover, the outbreak of war in Europe led to an acceleration of gold inflows as Britain and other allies paid for domestically produced war materials and supplies by shipping gold to the United States [43]. This, along with another contributing factor, resulted in a strong expansion of the monetary base and the money supply. As a result, inflation rose significantly during the war despite price and wage controls, and consumer credit controls were imposed to curb inflation.

For many years, reserve requirements were an important part of US monetary policy, but since the Treasury-Federal Reserve accord, more emphasis was placed on open market operations. Selective credit controls, except on stock exchange securities, were not a permanent part of monetary control. However, the US did not face the same reconstruction or payment difficulties as other countries, and its simple monetary policy techniques combined with budget surpluses facilitated steady economic growth and high employment. Although there had been no direct controls for most postwar years, the US experienced moderate price increases compared to other countries [44].

If we look deeper into the foreign experience of countries who took part in World War II, Belgium was one of those that returned the fastest to economic liberalism by using monetary policy, which was consistent with the country's prevalent liberal philosophy. Belgium undertook a monetary purge in October 1944 to reduce the money supply by blocking part of the currency and bank deposits.

Besides, the banking system's liquidity was attacked to avoid excessive expansion of bank credit. Banks were required to keep 50 to 65% of their demand deposits as cash or government securities, and this provision has remained in force with minor modifications. The use of the discount rate technique began in January 1945 when the rate was lowered from 2 to 1.5% to promote the revival of production and the replenishment of stocks. The rate was gradually raised as the economy recovered and lowered during an economic recession in 1949 [44]. The central bank also set up a system of certified bank acceptances for imports and exports, which had been developed considerably and become the basis for charging different discount rates for different types of bank paper.

Analyzing the Netherlands and its experience with monetary policy after World War II, the country faced latent inflation with a money supply four times larger than in 1938, and wholesale prices 80% higher than prewar levels in May 1945. The government tried to tackle the problem in September 1945 by withdrawing and blocking all currency and deposit money. The idea was to gradually deblock old accounts to provide means of payments for current contributions to production. However, the deblocking of old money and assets together with the creation of new money led to the re-emergence of latent inflation in the early postwar years. Control over bank credit was exercised, with banks not allowed to give credit to anyone still holding blocked accounts. The discount rate remained at the 1941 level of 2,5%, and banks were not subject to reserve requirements. The mainstay of credit control was direct quantitative control. By 1949, the ratio of the money supply to national income had been restored to the 1938 level, and the excess money supply had been influenced with the help of rising prices and import surpluses [44].

Looking back at Germany after World War II, Germany demonstrated economic achievements since the currency reform of 1948, attributing them to a combination of monetary policy and generous U.S. assistance. Employment in industries has increased by over 20% and industrial production has more than doubled since then, while real wages have increased along with productivity. Germany adopted a tight monetary policy to control inflation, which was a major issue of the post-war period due to the previous period of hyperinflation. The central

bank was committed to maintaining price stability. Germany achieved a small balance of payments surplus and a commanding cumulative surplus with EPU by 1952. Despite a remaining unemployment amount of 1.1 million people, the country's progress should be judged against the backdrop of a rise in employment and real wages and the influx of millions of refugees from Eastern Germany. The Bundesbank was established in 1957, known for its independence and commitment to price stability. This independence was critical for implementing effective monetary policies without political interference. The primary goal of the Bundesbank was to maintain price stability. This objective guided its monetary policy decisions, often leading to higher interest rates to combat inflationary pressures.

France pursued an active monetary policy since World War II but faced unique economic challenges including persistent budget deficits, political instability, and social tensions. To combat inflation, France implemented an elaborate system of quantitative and qualitative controls over credit. However, as inflationary pressures continue to be generated, massive wage and price increases become inevitable. French monetary policy was characterized by periodic attempts to patch up loopholes in existing credit controls while acknowledging the need to raise the limit on credit in response to inflation [44]. Also, France was a significant beneficiary of the Marshall Plan, an American initiative to aid Western Europe. This aid was crucial in rebuilding France's economy and stabilizing its currency. In the result, by the 1950s, France's economy began to experience significant growth. This period, known as the “Thirty Glorious Years”, characterized by rapid industrialization and economic expansion.

After World War II the United Kingdom's monetary policy changes represent a more complete return to monetary orthodoxy compared to other countries. The new monetary policy relied on controlling bank liquidity to restrict the availability of bank credit, without using statutory reserve requirements or keeping interest rates low. The fear of increasing the cost of government debt had been set aside for a flexible monetary policy. Besides, short-term government paper interest rates increased to encourage banks to hold short-term government investments. Qualitative credit controls were used along with indirect pressure on banks during refinancing operations.

It is common and effective to peg the exchange rate at the start of military activities to stabilize macro-financial conditions. For instance, in 2008, the Georgian central bank stabilized the foreign exchange market by fixing the lari to the USD during the summer and autumn months. However, to achieve this, they had to devalue the domestic currency by 16% and stabilize the exchange rate at a new level through foreign exchange market intervention [45]. Similarly, Israel used various forms of pegging the shekel with varying degrees of success since 1985 but only introduced a floating exchange rate in June 2005 [50]. However, keeping the exchange rate fixed for an extended period can result in accumulating macroeconomic imbalances, as the effect of stabilizing the exchange rate diminishes over time. This fact is exemplified by the negative experiences of Libya (2016-2020) and Lebanon (in 2020) [46]. It is also worth noting that foreign exchange crises can occur even in peacetime if the exchange rate remains fixed for too long, as was the case in Chile, Mexico, and Thailand.

It is important to consider the link between war financing and monetary policy. War can be financed through various means, including tax increases, borrowing from domestic and foreign markets, receiving financial aid from other countries, and borrowing from the banking system. However, when central banks finance a large portion of the budget deficit, it often results in hyperinflation, high levels of dollarization, and, in some cases, the loss of monetary sovereignty. This was demonstrated after the First World War in countries such as Germany (where inflation reached 29,500% month-over-month in October 1923), Austria (which experienced 129% month-over-month inflation in August 1922), Poland (with 275% month-over-month inflation in October 1923), and others. Similar experiences occurred after the Second World War in Japan, Hungary, and again in Germany and Austria. South Korea also experienced high inflation during the Korean War (213% year-over-year in 1951), and Israel experienced a surge in inflation after the Lebanon War (480% year-over-year in November 1984) [48].

To recover from wartime crises, many countries have found success in abandoning monetization and adopting a more independent monetary policy, fiscal consolidation, and market financing. Two examples of successful programs were

implemented in Israel and Croatia. Israel's program, for instance, significantly reduced annual inflation from 480% to 18% in the mid-1980s through a combination of fiscal consolidation (such as subsidies reduction, new tax introduction, and limiting civil servants), tight monetary policy, and structural reforms [2]. Similarly, Croatia introduced a comparable program in 1993 after annual inflation surpassed 1000%, implementing measures such as tight monetary policy, fiscal adjustments (such as increasing tax revenue and reducing state budget expenditures), and structural reforms (such as accelerating privatization and demonopolizing the economy) [52]. Both countries limited the central bank's financing of the government and, with the collaboration of the government and central bank, successfully controlled inflation and stabilized inflationary expectations.

International experience with monetary policy tools in the post-war period varies significantly across countries, reflecting different economic conditions, institutional frameworks, and policy objectives. International experience on monetary policy tools in the post-war period is considered in Table 2.2.

Table 2.2. The monetary policy tools of the countries in the post-war period

Country, Year	Monetary policy of Central Bank
The United States of America, 1946-1953	<ul style="list-style-type: none"> • The preferential discount rate was abolished, marking the first move towards flexible interest rates. • The discontinuation of the buying offer on Treasury bills in July 1947 led to an increase in the rates on new issues of Treasury bills and certificates, which narrowed the spread between short-term and long-term interest rates and affected the money market rates. • The legal maximum requirements for central reserve city banks were increased to avoid a situation of bank credit's excessive expansion. This step reduced potential bank credit expansion by about 12 bln USD. • Temporary controls were imposed on consumer credits to curb speculative purchases of securities made with borrowed money.
France, 1945-1953	<ul style="list-style-type: none"> • The discount rate was raised significantly (from 1,625% to 3,5%) together with the rate on advances against securities (from 2,75% to 4,5%). These moving-ups resulted in the cost of borrowing from banks and made government bonds more appealing. In early 1950s, the discount rate was lowered to 2,5% to ease the restrictions on loans. • The direct credit controls were initiated to give the power for the National Credit Council to grant authority to provide banks with instructions or recommendations on the types of loan they should promote or discourage. • The regulations on mandatory reserves were also updated (during 1945-1950 every month, in 1951 – on daily basis) and increased.

<i>Continuation of Table 2.2.</i>	
Country, Year	Monetary policy of Central Bank
Germany, 1948-1953	<ul style="list-style-type: none"> • Change from the old Reichs mark to a new Deutsche Mark. The conversion rate of RM 10 to DM 1 was used to convert most monetary claims under the currency reform, which also declared the entire internal debt of the old Reich worthless, resulting in a reduction in the money supply and liquid assets in the economy. • The minimum reserve requirements and the key policy rate were raised to restrict bank credit in 1948 and 1950. • Imports were made harder to finance by requiring a 50% cash deposit at the central bank for import permit grants or extensions. As a result, the balance of payments position improved.
The United Kingdom, 1945-1953	<ul style="list-style-type: none"> • The interest rates on short- and long-term government security rates were decreased to sell Treasury Bills held by government agencies to banks and purchase long-term securities from the public with the proceeds of the Treasury Bill sales (Ultra-cheap-money policy). • Qualitative control over bank credit was introduced, consisting mainly of instructions sent out to banks by the Bank of England regarding the priorities to be given to different uses in granting bank advances. • A substantial outflow of reserves, primarily due to the UK's balance of payments situation, occurred in 1951 amounting to \$1.5 billion over six months. To stop this drain, the key policy rate was raised several times step-by-step, the peg on the Treasury Bill rate was removed, and the direct or qualitative controls were further intensified.
Israel, 1985	<ul style="list-style-type: none"> • The Bank of Israel increased the reserve requirements and the real discount rate to restrict the growth of deregulated banking lending. • The minimum term for dollar-indexed deposits was raised to 1 year. • The new central bank law was introduced, prohibiting borrowing from the BoI to finance the budget deficit. • The tradability of government bonds was improved. • The exchange rate was devaluated, partially unified for importers and exporters, and the rate was fixed to the USD at NIS 1,5 per dollar.
Croatia, 1995-2000	<ul style="list-style-type: none"> • The Stabilisation Programme included the establishment of nominal exchange rate targeting framework as a crucial component. • The emergence of numerous new banks due to financial liberalization and low requirements has led to intense competition for deposits, resulting in the establishment of attractive deposit rates. • To prevent appreciation, the monetary policy facilitated capital inflows by buying foreign currency. • The excess liquidity was sterilized mainly through reserve requirement, but the CNB also issued voluntary and obligatory bills in kuna with high interest rates, which succeeded in lowering money market interest rates.

Source: developed by authors based on [42-50]

The effectiveness of these tools depends on various factors, including the state of the economy, the financial system's structure, and the central bank's credibility. In the post-war context, the focus often shifts towards rebuilding and stabilizing the economy, addressing inflation or deflation, and ensuring a smooth transition to peacetime economic conditions. International coordination and learning from global best practices also play a significant role in shaping post-war monetary policy.